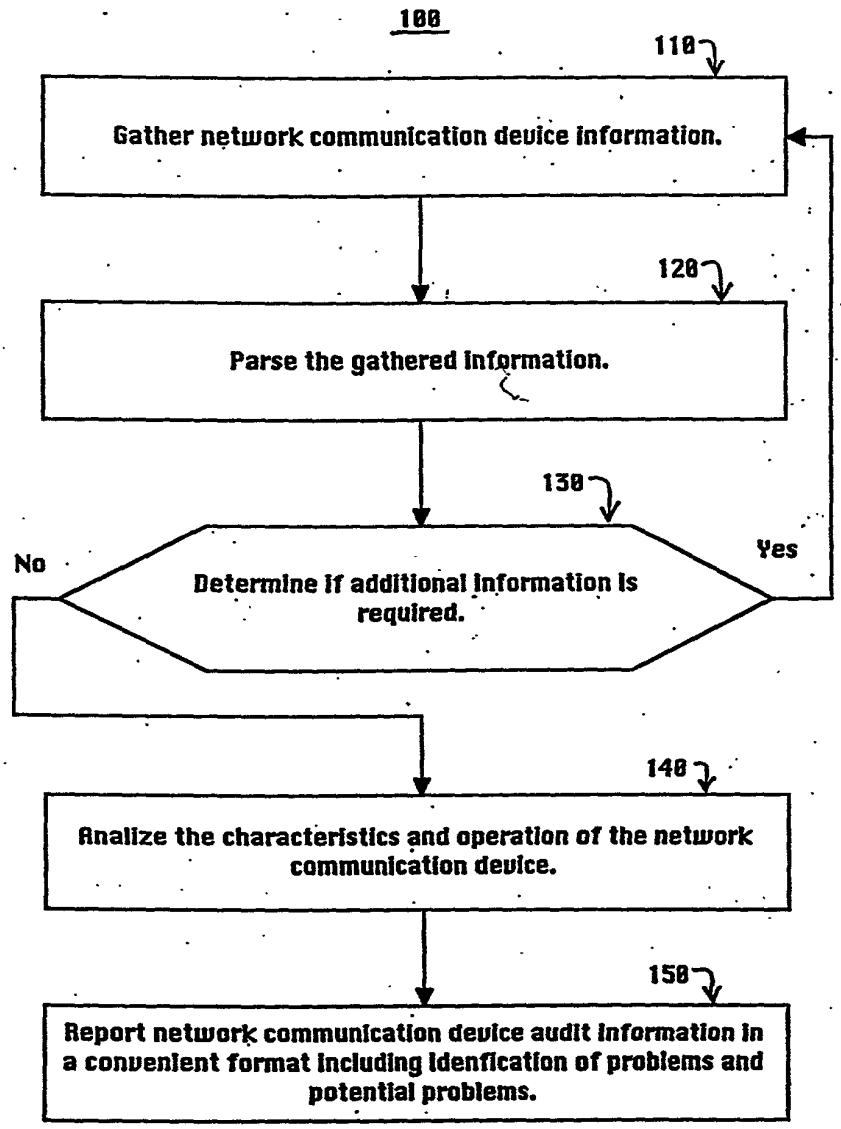
100
110
Gather network communication device information.
120
Parse the gathered information.
130
Determine if additional information is required.
No
Yes
140
Analize the characteristics and operation of the network communication device.
150
Report network communication device audit information in a convenient format including idenfication of problems and potential problems.

FIG. 1

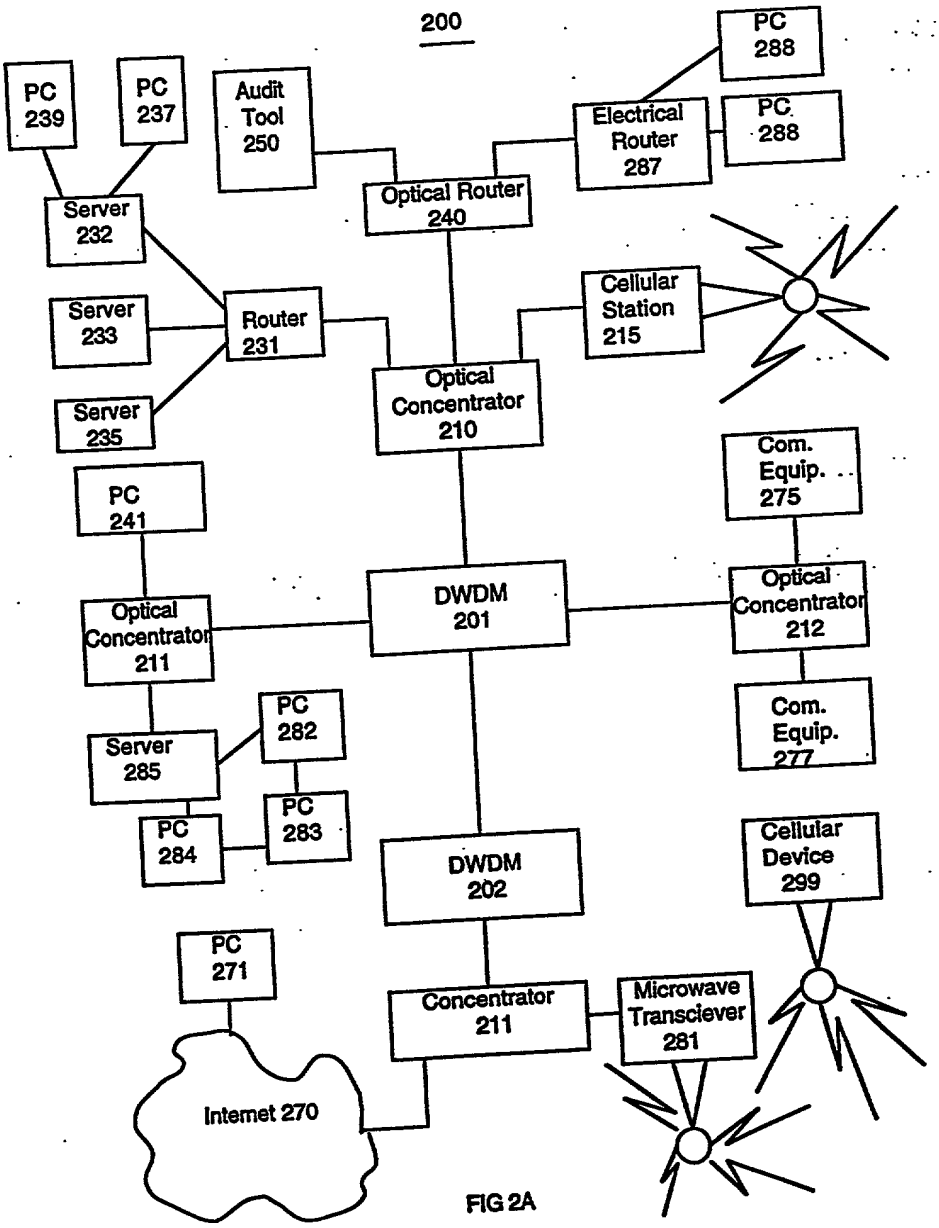
200
PC 239
PC 237
Audit Tool 250
PC 288
Electrical Router 287
PC 288
Optical Router 240
Server 232
Server 233
Router 231
Cellular Station 215
Server 235
Optical Concentrator 210
PC 241
Com. Equip. 275
DWDM 201
Optical Concentrator 211
Optical Concentrator 212
PC 282
Server 285
Com. Equip. 277
PC 284
PC 283
DWDM 202
Cellular Device 299
PC 271
Concentrator 211
Microwave Transciever 281
Internet 270

FIG 2A

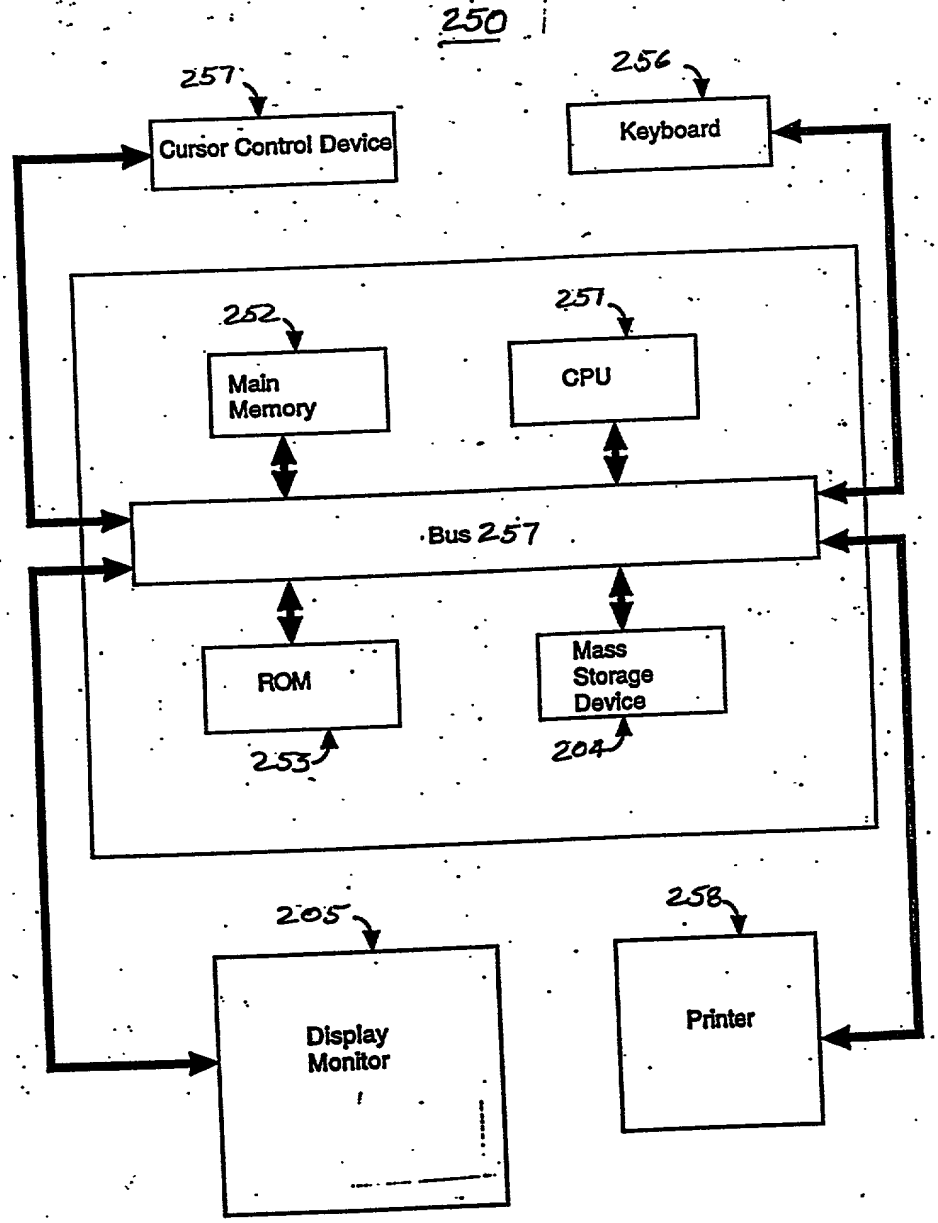
250
257
Cursor Control Device
256
Keyboard
252
Main Memory
251
CPU
Bus 257
ROM
253
Mass Storage Device
204
205
Display Monitor
258
Printer

FIG. 2B

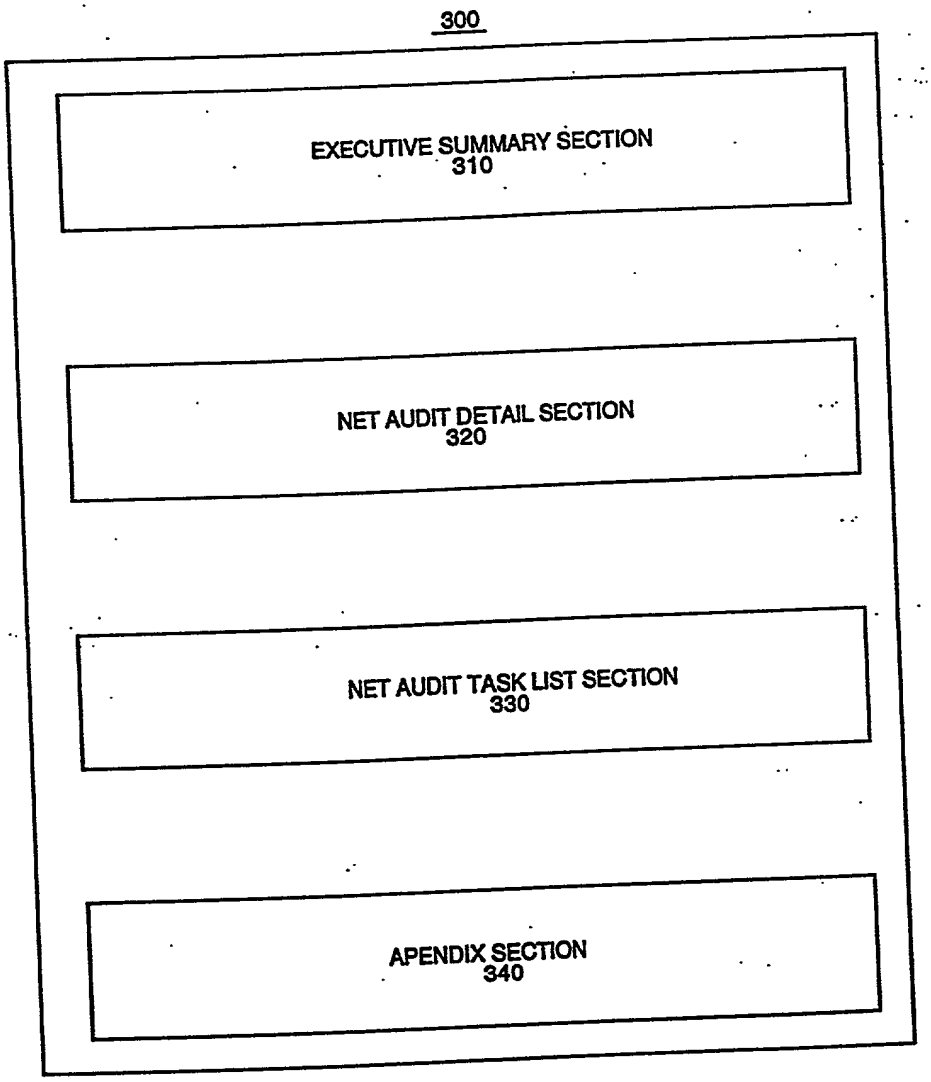
300
EXECUTIVE SUMMARY SECTION
310
NET AUDIT DETAIL SECTION
320
NET AUDIT TASK LIST SECTION
330
APENDIX SECTION
340

FIG 3

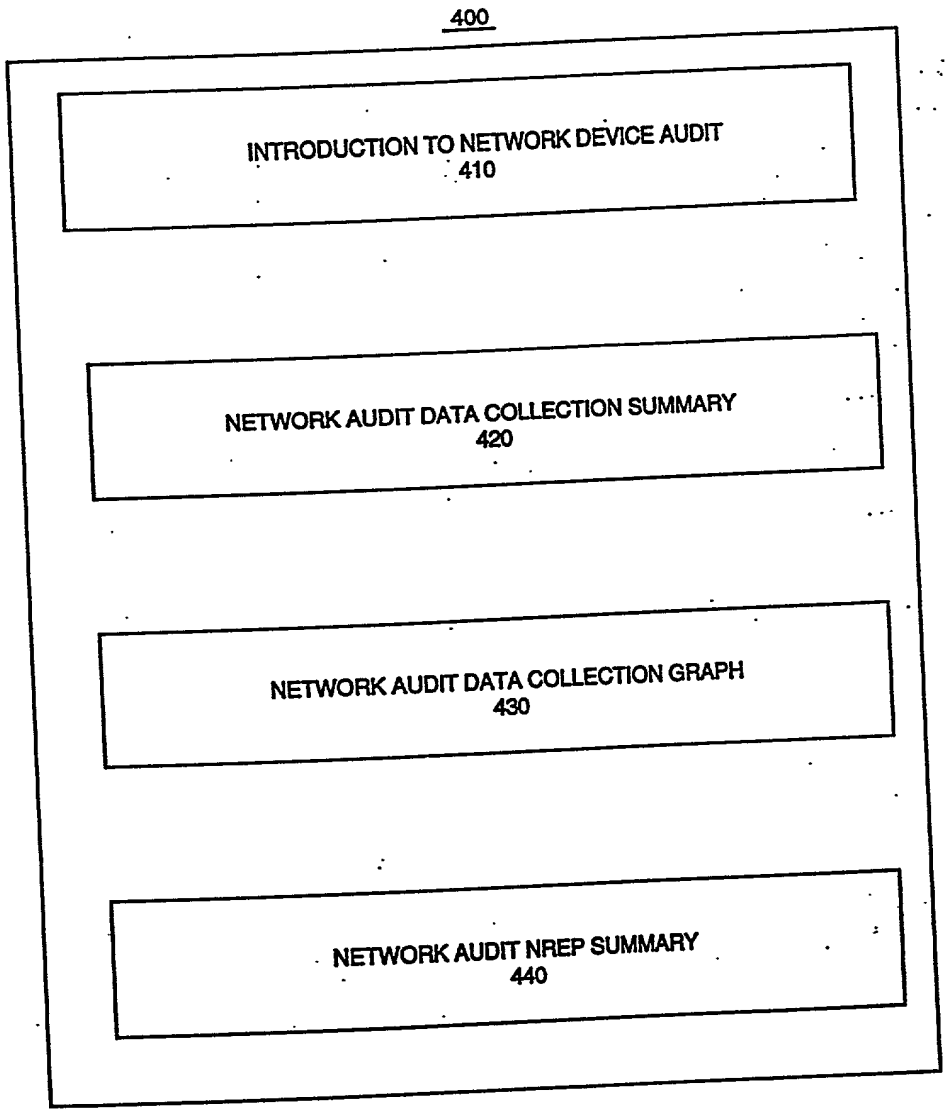
400
INTRODUCTION TO NETWORK DEVICE AUDIT
410
NETWORK AUDIT DATA COLLECTION SUMMARY
420
NETWORK AUDIT DATA COLLECTION GRAPH
430
NETWORK AUDIT NREP SUMMARY
440

FIG 4A

INTRODUCTION TO: Network Optical Concentrator 15454 Audit.

Optical 15454 network audit provides a convienent identification of the network optical concentrators included in a network and assessesment of those network optical concentrators. Network optical concentrators _____. This report assesses the health of these devices according to four network management categories (configuration management, fault management, performance management and capacity management) in a convenient format.

FIG 4B

NETWORK AUDIT DATA COLLECTION SUMMARY TABLE

Collection Period	
Collection Start Time	
Collection Stop Time	
Unreachable Nodes	

FIG 4C

NETWORK AUDIT DATA COLLECTION GRAPH

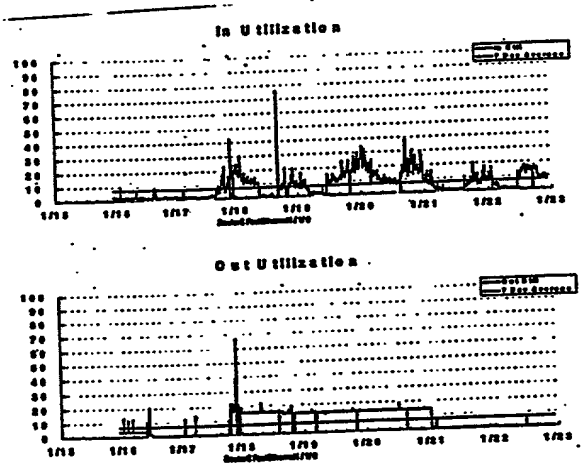

FIG 4D

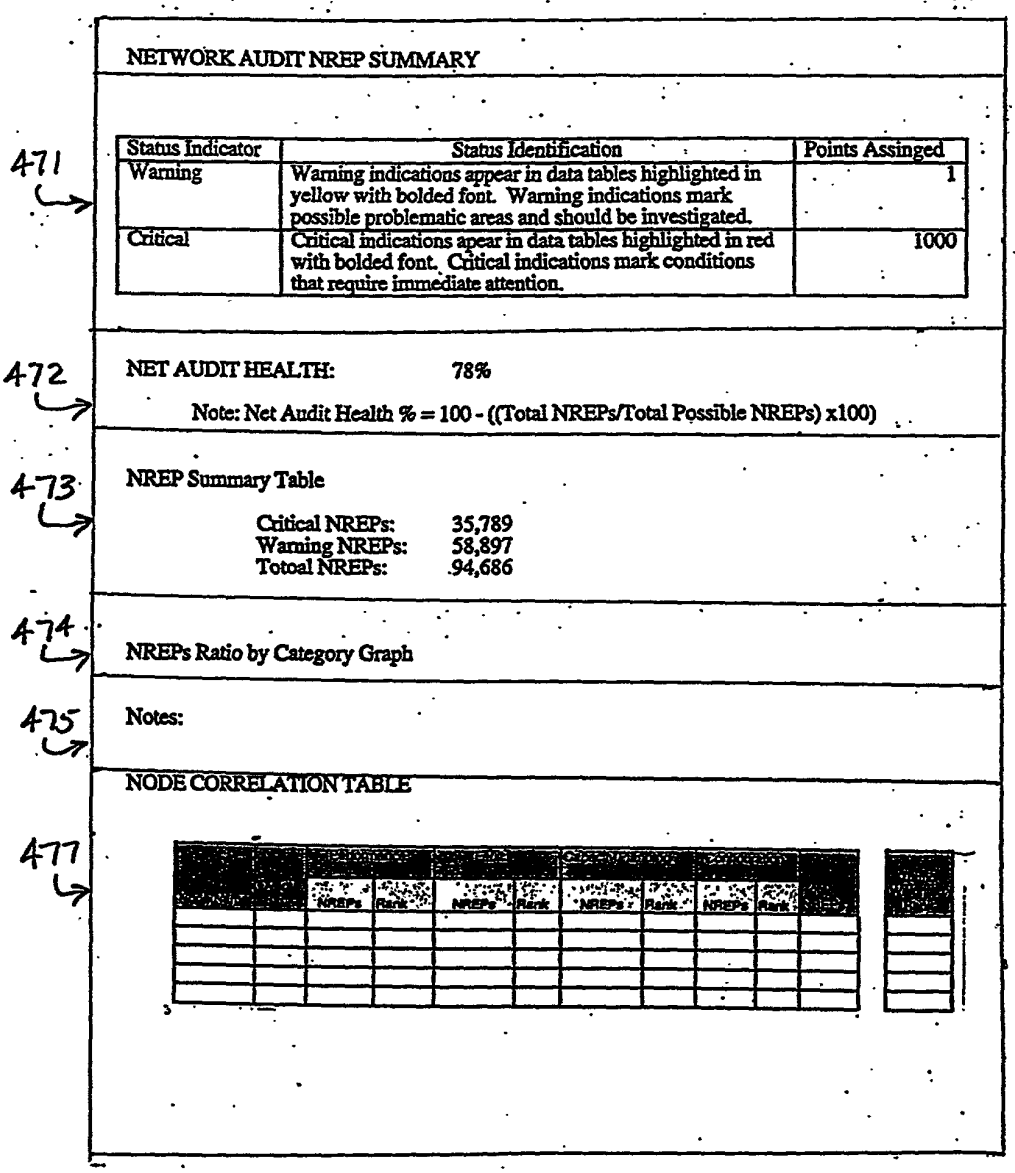
NETWORK AUDIT NREP SUMMARY
471
Status Indicator
Status Identification
Points Assinged
Warning
Warning indications appear in data tables highlighted in yellow with bolded font. Warning indications mark possible problematic areas and should be investigated.
1
Critical
Critical indications apear in data tables highlighted in red with bolded font. Critical indications mark conditions that require immediate attention.
1000
472
NET AUDIT HEALTH: 78%
Note: Net Audit Health % = 100 - ((Total NREPs/Total Possible NREPs) x100)
473
NREP Summary Table
Critical NREPs: 35,789
Warning NREPs: 58,897
Totoal NREPs: 94,686
474
NREPs Ratio by Category Graph
475
Notes:
NODE CORRELATION TABLE
477
NREPs
Rank
NREPs
Rank
NREPs
Rank
NREPs
Rank

FIG 4E

500

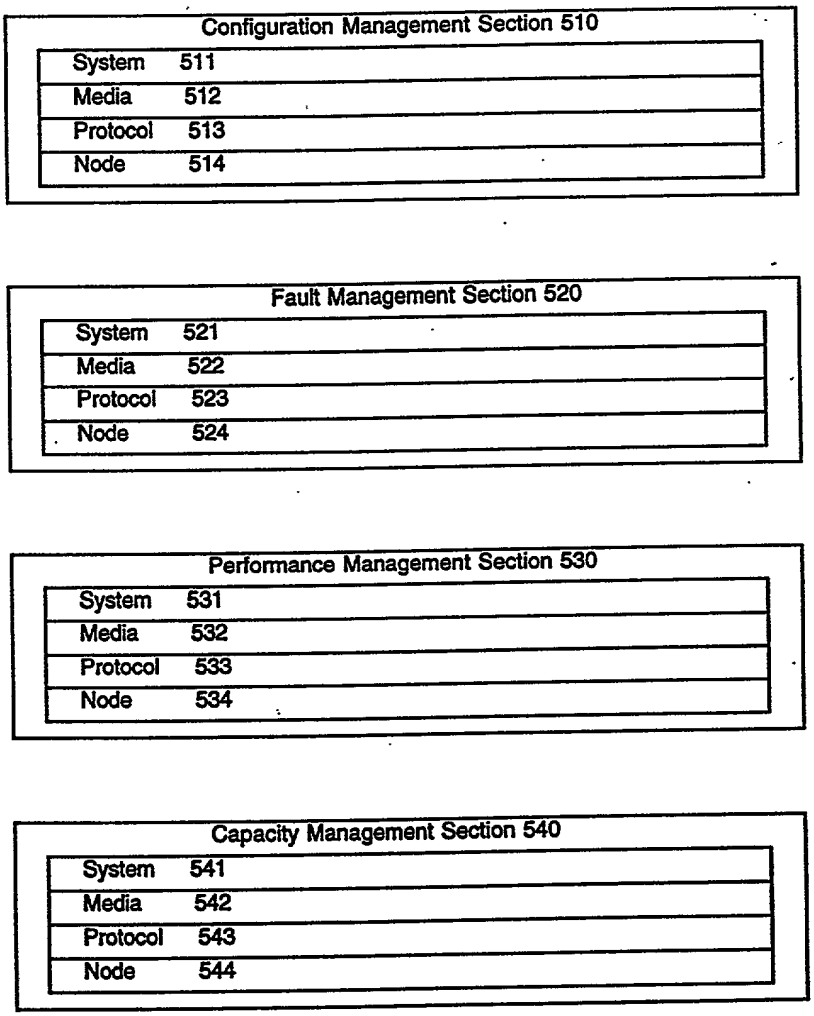
Configuration Management Section 510
System 511
Media 512
Protocol 513
Node 514
Fault Management Section 520
System 521
Media 522
Protocol 523
Node 524
Performance Management Section 530
System 531
Media 532
Protocol 533
Node 534
Capacity Management Section 540
System 541
Media 542
Protocol 543
Node 544

Fig 5

600

SUBIMPACT AREA:

Node: Model: System NREPs:

Fault		Performance		Capacity Planning		Configuration	
Total NREPs		Total NREPs		Total NREPs		Total NREPs	
Component Name	Value	Component Name	Value	Component Name	Value	Component Name	Value

FIG 6

Network Element Table

710

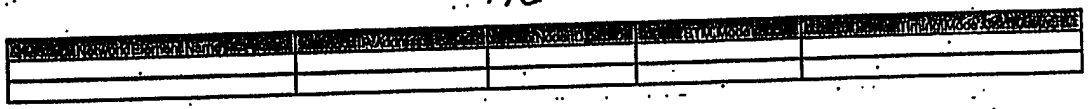

FIG 7A

Board Table

720

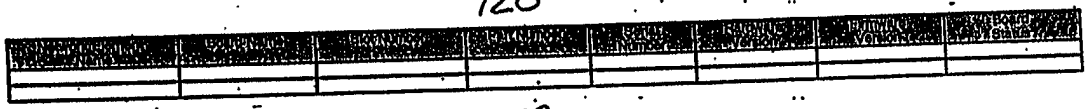

FIG 7B

BITS and Synchronization Reference Table

730

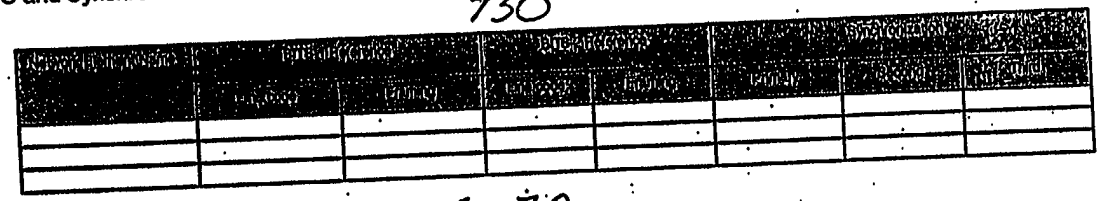

FIG 7C

Network Element Protection Table

740

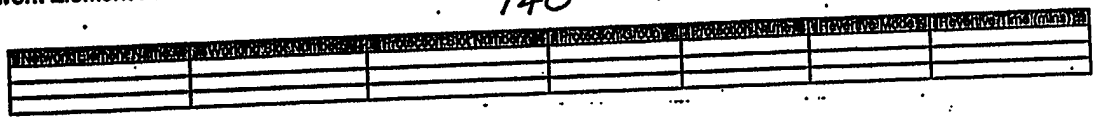

Fig 7D

Optical Facilities Protection Table

750

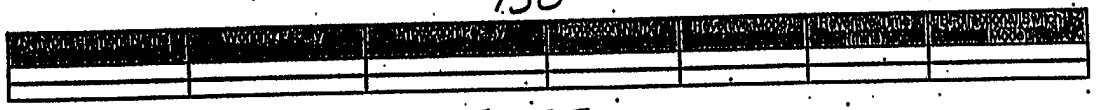

Fig 7E

Cross Connect Table

760

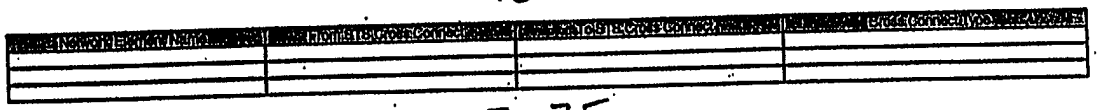

Fig 7F

DS1 Service Parameters Table

770

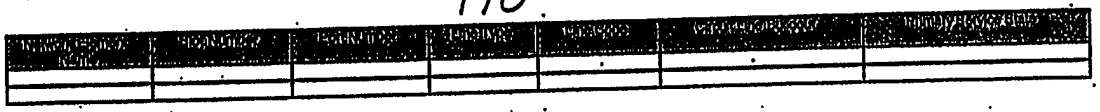

FIG 7G

DS3 Service Parameters Table

780

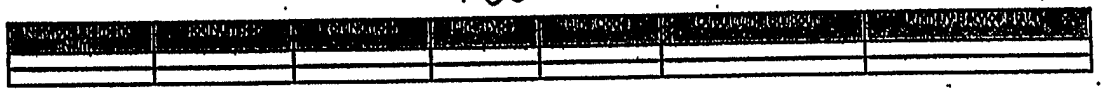

FIG 7H

Optical Service Parameters Table

790

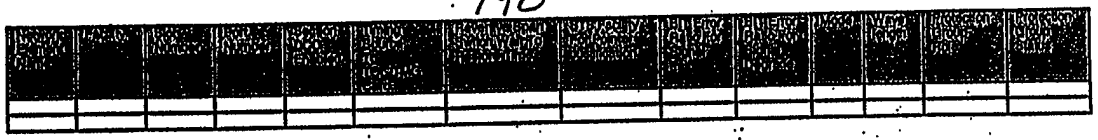

FIG 7I

Network Element Field Notice Table 810

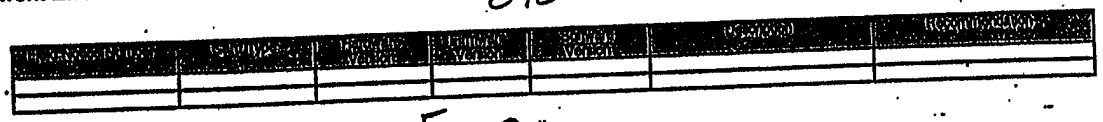

FIG. 8A

Alarm Status Table 820

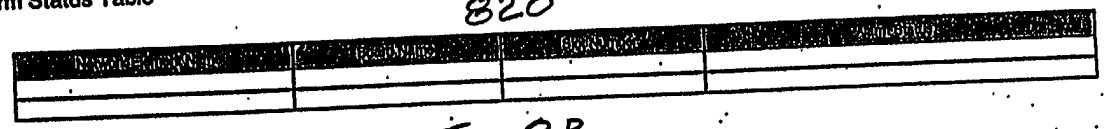

FIG 8B

Electrical Performance Table Near End

910

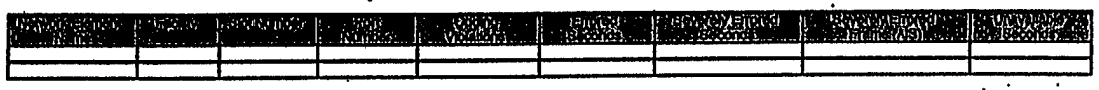

Fig 9A

Optical Performance Table Near End

920

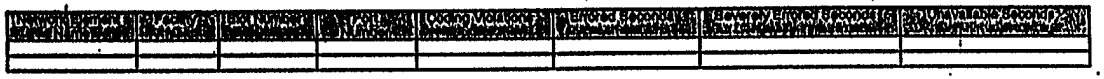

Fig 9B

Optical Performance Table Far End

930

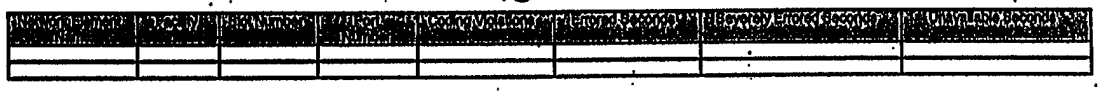

Fig 9C

Network Element Capacity Table

1010

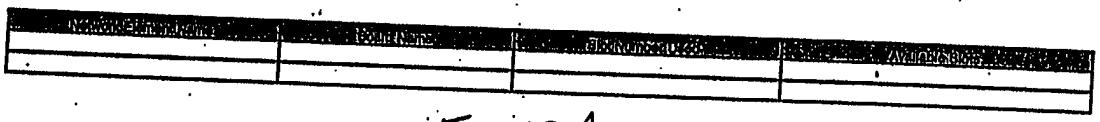

FIG 10A

Net Audit Task List Table

1020

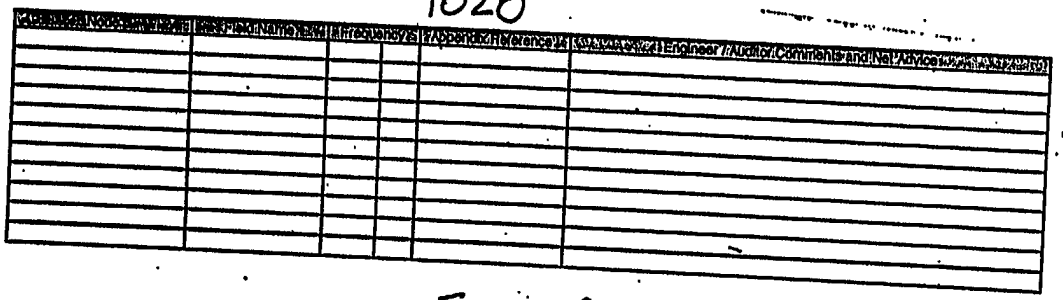

FIG 10B

1030

Appendix D - Device Unreachable Table

Hostname or IP Address	Iteration 1 Reason for Failure	Iteration 2 Reason for Failure
Router I	PASS	router
Router J	PASS	C2900

The Failure Type is one of the following:

Duplicated_Fail
Device is in the list more than once and data was unsuccessfully collected.

Duplicated_Pass
Device is in the list more than once and data was successfully collected.

FAIL
Device either had unknown IDs or passwords, or could not be reached due to network problems.

Not Used
Device was in the initial audit request but was not in the device list at the time of the collection.

Switch
Device is a 29xx switch, not a router. NATkit will be corrected in the future to properly classify the 29xx switches, so that they do not appear in the Router Stability Net Audit.

Incomplete Command Set
During the data collection, one or more commands were not retrieved from the router, most likely because the connection between the NATkit and the router failed.

FIG 10C

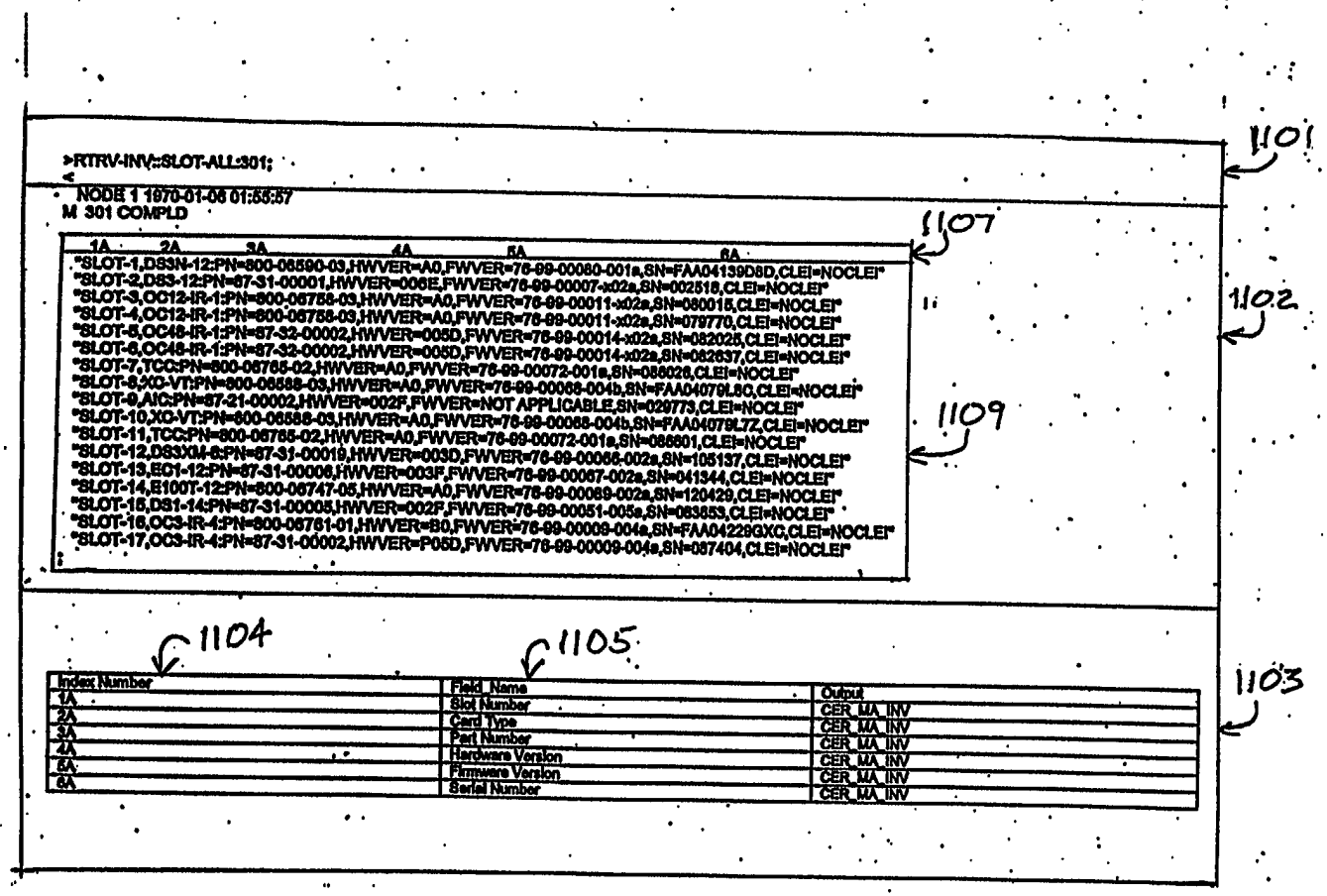
>RTRV-INV:::SLOT-ALL:301;
NODE 1 1970-01-06 01:55:57
M 301 COMPLD
1A 2A 3A 4A 5A 6A
"SLOT-1,DS3N-12:PN=800-06590-03,HWVER=A0,FWVER=76-99-00060-001a,SN=FAA04139D8D,CLEI=NOCLEI"
"SLOT-2,DS3-12:PN=87-31-00001,HWVER=006E,FWVER=76-99-00007-x02a,SN=002518,CLEI=NOCLEI"
"SLOT-3,OC12-IR-1:PN=800-06758-03,HWVER=A0,FWVER=76-99-00011-x02a,SN=080015,CLEI=NOCLEI"
"SLOT-4,OC12-IR-1:PN=800-06758-03,HWVER=A0,FWVER=76-99-00011-x02a,SN=079770,CLEI=NOCLEI"
"SLOT-5,OC48-IR-1:PN=87-32-00002,HWVER=005D,FWVER=76-99-00014-x02a,SN=082025,CLEI=NOCLEI"
"SLOT-6,OC48-IR-1:PN=87-32-00002,HWVER=005D,FWVER=76-99-00014-x02a,SN=082637,CLEI=NOCLEI"
"SLOT-7,TCC:PN=800-06765-02,HWVER=A0,FWVER=76-99-00072-001a,SN=086028,CLEI=NOCLEI"
"SLOT-8,XC-VT:PN=800-06588-03,HWVER=A0,FWVER=76-99-00068-004b,SN=FAA04079L8C,CLEI=NOCLEI"
"SLOT-9,AIC:PN=87-21-00002,HWVER=002F,FWVER=NOT APPLICABLE,SN=029773,CLEI=NOCLEI"
"SLOT-10,XC-VT:PN=800-06588-03,HWVER=A0,FWVER=76-99-00068-004b,SN=FAA04079L7Z,CLEI=NOCLEI"
"SLOT-11,TCC:PN=800-06765-02,HWVER=A0,FWVER=76-99-00072-001a,SN=086601,CLEI=NOCLEI"
"SLOT-12,DS3XM-6:PN=87-31-00019,HWVER=003D,FWVER=76-99-00066-002a,SN=105137,CLEI=NOCLEI"
"SLOT-13,EC1-12:PN=87-31-00006,HWVER=003F,FWVER=76-99-00067-002a,SN=041344,CLEI=NOCLEI"
"SLOT-14,E100T-12:PN=800-06747-05,HWVER=A0,FWVER=76-99-00089-002a,SN=120429,CLEI=NOCLEI"
"SLOT-15,DS1-14:PN=87-31-00005,HWVER=002F,FWVER=76-99-00051-005a,SN=083853,CLEI=NOCLEI"
"SLOT-16,OC3-IR-4:PN=800-06761-01,HWVER=B0,FWVER=76-99-00009-004a,SN=FAA04229GXG,CLEI=NOCLEI"
"SLOT-17,OC3-IR-4:PN=87-31-00002,HWVER=P05D,FWVER=76-99-00009-004a,SN=087404,CLEI=NOCLEI"
1101
1107
1102
1109
1104
1105
1103
Index Number
Field Name
Output
1A
Slot Number
CER_MA_INV
2A
Card Type
CER_MA_INV
3A
Part Number
CER_MA_INV
4A
Hardware Version
CER_MA_INV
5A
Firmware Version
CER_MA_INV
6A
Serial Number
CER_MA_INV

FIG 11A

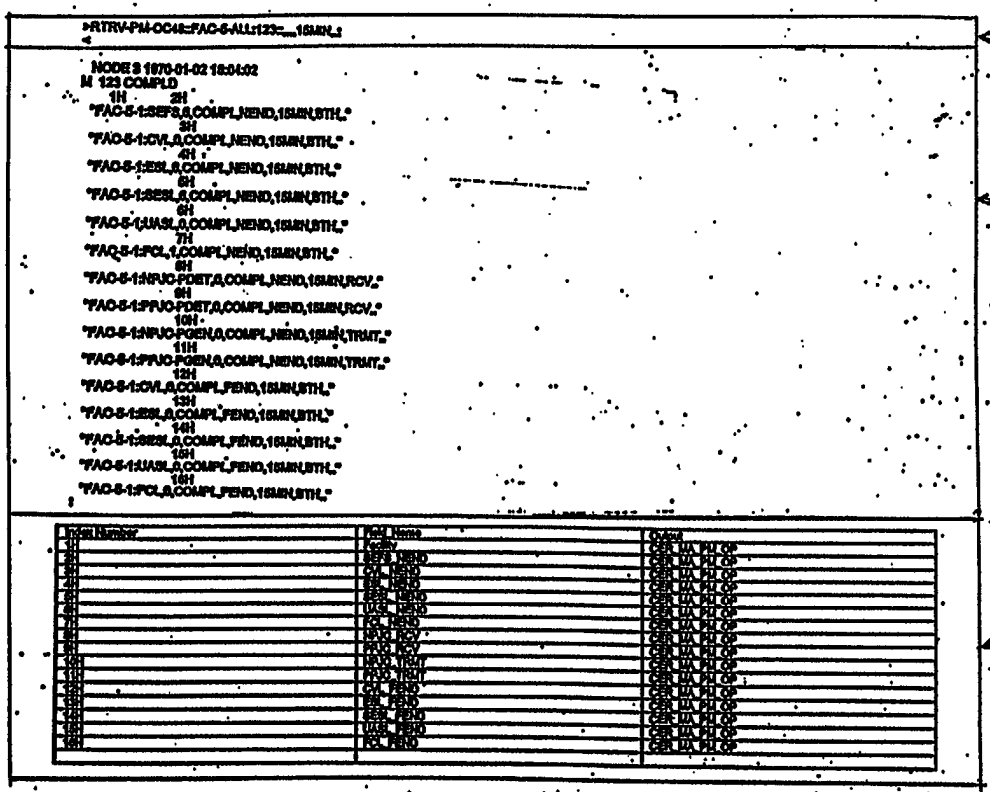

FIG 11B.

Optical Performance Table
Far End

Network Element Name	Facility	Slot Number	Port Number	Coding Violations	Errored Seconds	Severely Errored Seconds	Unavailable Seconds
	CER_MA_INV Index 2A	CER_MA_PM_OP Index 1H	CER_MA_PM_OP Index 1H	CER_MA_PM_OP Index 12H	CER_MA_PM_OP Index 13H	CER_MA_PM_OP Index 14H	CER_MA_PM_OP Index 15H
NODE 1	OC-48	5	1	1	1	1	1
				OC3 Interfaces If the number exceeds 1312 for a 15 min. interval or exceeds 13,120 for a 1 day interval, flag RED. OC12 Interfaces If the number exceeds 5315 for a 15 min. interval or exceeds 53,250 for a 1 day interval, flag RED. OC48 Interfaces If the number exceeds 21,260 for a 15 min. interval or exceeds 212,600 for a 1 day interval, flag RED.	If the number exceeds 87 for a 15 min. interval or exceeds 864 for a 1 day interval, flag RED.	If the number exceeds 1 for a 15 min. interval or exceeds 4 for a 1 day interval, flag RED	If the number exceeds 3 for a 15 min. interval or exceeds 10 for a 1 day interval, flag RED

1131
1132
1133

FIG 11C

COMMAND	RETRIEVED INFORMATION
RTRV-INV::SLOT-*xxx:yyy;*	Slot number, Card Type, Part Number, Hardware Version, Firmware Version, and Serial Number.
RTRV-NE::::;	Internet Protocol (IP) Address, Synchronous Transfer Mode, Node Identification (ID), and Timing Mode.
RTRV-EQPT::SLOT-*xxx:yyy;*	Slot Number, Card Type, and Card Status.
RTRV-BITS::BITS-*xxx:yyy;*	BITS Reference Number, Line Coding, and Frame Format.
RTRV_SYNC::SYNC-NE:*xxx:yyy;*	Synchronization Sources such a First Primary Synchronization Source, Second Synchronization Source, and a Third Syuncronization Source.
RTRV-ALM-ALL:::*yyy;*	Alarms and associated Slot Numbers.
RTRV-TOD:::*yyy;*	Time of Day.
RTRV-PM-OC*vv*:: FAC-*xxx*-ALL:*yyy*::,,,,*zzz*,,;	Facilitiy and Near End and Far End performance such as transmission and reception Severly Errored Framing Second (SEFS), Line Coding Violation (CVL), Line Errored Second (ESL), Line Severly Errored Second (SESL), Path Unavailable Second (UASP), Path Coding Violation (CVP), Path Errored Second (ESP), and Path Severely Errored Second (SESP). Transmission and reception NPJC and PPJC information.
RTRV-PM-T1: FAC-*xxx*-ALL:*yyy*::,,,,*zzz*,,:	Facilitiy and Near End performance such as transmission and reception Severly Errored Framing Second (SEFS), Line Coding Violation (CVL), Line Errored Second (ESL), Line Severly Errored Second (SESL), Line Unavailable Second (UASL) and Line Failure Count (FCL). Transmission and reception NPJC and PPJC information.
RTRV-OC*vv*:: FAC-*xxx*-ALL:*yyy*::,,,,*zzz*,,;	Facility, Section DCC Enabled, Timing Source for TCC/TMG Card, Span Switch Wait to Restore Time, STA Monitored Facilitiy for Pointer Justfications, Singal Failure Bit Error Ratio, Signl Degrade Bit Error Ratio Threshold, Facilitiy state, Protection Group Role, and Protection Group Status.
RTRV-T3:CERENT:FAC-*xxx-y:zzz*::; or RTRV-T1:TID:FAC-*vv-uu:yyyy;*	Facility, Line Type, Line Coding, Line Buildout, and Primary Service State.
RTRV-FFP-EQPT::SLOT-*vv:yyy;*	Working Slot Number, Protection Slot Number, Protection Group, Protection name, Revertive Mode, and Revertive Time.
RTRV-FFP-OC*vv*::FAC-*xx-yy:zz;*	Retrieves Informatin on working Slot Number, Protection Slot Number, Protection Group, Protection name, Revertive Mode, Revertive Time and Bidirectional Switch Mode.
RTRV-CRS-STS3C::STS-*vv-xx-:yyyy;*	Retrieves Information on From CRS, To CRS and CRS type.

Fig 11D

OC3 Interfaces If the number exceeds 1312 for a 15 min. Interval or exceeds 13,120 for a 1-day interval OC12 Interfaces If the number exceeds 5315 for a 15 min. Interval or exceeds 53,250 for a 1-day Interval OC48 Interfaces If the number exceeds 21,260 for a 15 min. Interval or exceeds 212,600 for a 1-day Interval	Optical Performance Table Near and Far end Coding Violations	For OC3 Interfaces If the number exceeds 1312 for a 15 min. Interval or exceeds 13,120 for a 1-day Interval are bolded red For OC12 Interfaces If the number exceeds 5315 for a 15 min. Interval or exceeds 53,250 for a 1-day Interval are bolded red For OC48 Interfaces If the number exceeds 21,260 for a 15 min. Interval or exceeds 212,600 for a 1-day Interval are bolded red
DS1 Interfaces If the number exceeds 13,340 for a 15 min. Interval or exceeds 133,400 for a 1-day Interval DS-3Interfaces If the number exceeds 387 for a 15 min. Interval or exceeds 3865 for a 1-day Interval EC-1 Interfaces If the number exceeds 1312 for a 15 min. Interval or exceeds 13,120 for a 1-day Interval OS3DM-6 Interface If the number exceeds 387 for a 15 min. Interval or exceeds 3865 for a 1-day Interval	Electrical Performance Near End table Coding Violations	ForDS1 Interfaces If the number exceeds 13,340 for a 15 min. Interval or exceeds 133,400 for a 1-day Interval are bolded red . For DS-3Interfaces If the number exceeds 387 for a 15 min. Interval or exceeds 3865 for a 1-day Interval are bolded red . For EC-1 Interfaces If the number exceeds 1312 for a 15 min. Interval or exceeds 13,120 for a 1-day Interval are bolded red . For DS3DM-6 Interface If the number exceeds 387 for a 15 min. Interval or exceeds 3865 for a 1-day Interval are bolded red
If the number exceeds 87 for a 15 min. Interval or exceeds 864 for a 1 day Interval	Optical Performance Table Near and Far end Errored Seconds	If the number exceeds 87 for a 15 min. Interval or exceeds 864 for a 1 day Interval are bolded red
DS1 Interfaces If the number exceeds 65 for a 15 min. Interval or exceeds 648 for a 1-day Interval DS-3 Interfaces If the number exceeds 25 for a 15 min. Interval or exceeds 250 for a 1-day Interval EC-1 Interfaces If the number exceeds 87 for a 15 min. Interval or exceeds 864 for a 1-day Interval DS3DM-6 Interface If the number exceeds 25 for a 15 min. Interval or exceeds 250 for a 1-day Interval	Electrical Performance Near End table Errored Seconds	For DS1 Interfaces If the number exceeds 65 for a 15 min. Interval or exceeds 648 for a 1-day Interval are bolded red DS-3 Interfaces. For DS-3 Interfaces If the number exceeds 25 for a 15 min. Interval or exceeds 250 for a 1-day Interval are bolded red . For EC-1 Interfaces If the number exceeds 87 for a 15 min. Interval or exceeds 864 for a 1-day Interval are bolded red For DS3DM-6 Interface If the number exceeds 25 for a 15 min. Interval or exceeds 250 for a 1-day Interval are bolded red

Fig 11E

Net Rule	Heading	Description
DS1 Interfaces If the number exceeds 10 for a 15 min. Interval or exceeds 10 for a 1-day interval DS-3 Interfaces If the number exceeds 10 for a 15 min. Interval or exceeds 10 for a 1-day Interval . EC-1 Interfaces If the number exceeds 10 for a 15 min. Interval or exceeds 10 for a 1-day Interval DS3XM-6 Interface If the number exceeds 10 for a 15 min. Interval or exceeds 10 for a 1-day Interval .	Severely Errored Frame (AIS)	For DS1 Interfaces If the number exceeds 10 for a 15 min. Interval or exceeds 10 for a 1-day Interval are bolded red . For DS-3 Interfaces If the number exceeds 10 for a 15 min. Interval or exceeds 10 for a 1-day Interval are bolded red For EC-1 Interfaces If the number exceeds 10 for a 15 min. Interval or exceeds 10 for a 1-day Interval are bolded red . For DS3XM-6 Interface If the number exceeds 10 for a 15 min. Interval or exceeds 10 for a 1-day Interval are bolded red
If the number exceeds 1 for a 15 min. Interval or exceeds 4 for a 1 day Interval	Optical Performance Table Near and Far end Severely Errored Seconds	If the number exceeds 1 for a 15 min. Interval or exceeds 4 for a 1 day Interval are bolded red
DS1 Interfaces If the number exceeds 10 for a 15 min. Interval or exceeds 100 for a 1-day Interval DS-3 Interfaces If the number exceeds 4 for a 15 min. Interval or exceeds 40 for a 1-day Interval EC-1 Interfaces If the number exceeds 1 for a 15 min. Interval or exceeds 4 for a 1-day Interval . DS3XM-6 Interface If the number exceeds 4 for a 15 min. Interval or exceeds 40 for a 1-day Interval	Electrical Performance Near End table Severely Errored Seconds	ForDS1 Interfaces If the number exceeds 10 for a 15 min. Interval or exceeds 100 for a 1-day Interval are bolded red For DS-3 Interfaces If the number exceeds 4 for a 15 min. Interval or exceeds 40 for a 1-day Interval are bolded red For EC-1 Interfaces If the number exceeds 1 for a 15 min. Interval or exceeds 4 for a 1-day Interval are bolded red . For DS3XM-6 Interface If the number exceeds 4 for a 15 min. Interval or exceeds 40 for a 1-day Interval are bolded red
	Slot Number	Displays Slot Number
DS1 Interfaces If the number exceeds 3 for a 15 min. Interval or exceeds 10 for a 1-day Interval DS-3 Interfaces If the number exceeds 3 for a 15 min. Interval or exceeds 10 for a 1-day Interval EC-1 Interfaces If the number exceeds 3 for a 15 min. Interval or exceeds 10 for a 1-day Interval DS3XM-6 Intaface If the number exceeds 10 for a 15 min. Interval or exceeds 10 for a 1-day Interval .	Electrical Performance Near End table Unavailable Seconds	For DS1 Interfaces If the number exceeds 3 for a 15 min. Interval or exceeds 10 for a 1-day Interval are bolded red . For DS-3 Interfaces If the number exceeds 3 for a 15 min. Interval or exceeds 10 for a 1-day Interval are bolded red EC-1 Interfaces If the number exceeds 3 for a 15 min. Interval or exceeds 10 for a 1-day Interval are bolded red For DS3XM-6 Interface If the number exceeds 10 for a 15 min. Interval or exceeds 10 for a 1-day Interval are bolded red
If the number exceeds 3 for a 15 min. Interval or exceeds 10 for a 1 day Interval	Optical Performance Table Near and Far end Unavailable Seconds	If the number exceeds 3 for a 15 min. Interval or exceeds 10 for a 1 day Interval are bolded red

Fig 11 F

Field Notice Number	Card Type	Hardware Version	Firmware Version	Software Version	Description	Recommendation
12851	E100T	800-06747-05 A0 or prior	N/A	N/A	Incorrect coding in C2 byte of optical backbone facility. All versions of the E100T card prior to 800-06747-05 A0 will require a hardware upgrade to support features introduced in version 2.2 CTC (Cisco Transport Controller) and later	Old revision boards will not operate with CTC 2.2. It is important to understand that without the upgraded cards Ethernet traffic will not operate using CTC 2.2. If you need additional technical assistance, please call the Cisco Technical Assistance Center at (877) 323-7368.
19	OC12 Cards	800-06758-01 A0 800-06759-01 A0 800-06760-01 A0	N/A	N/A	Bit errors may be seen on an OC-12 card when the incoming line frequency is less than the NE's internal clock by more than 4ppm. This can happen as a result of synchronization problems in the network, or if the node is operating in free running synchronous mode. Bit errors may be seen when synchronization timing references drift off frequency by 4 ppm or more, or when networks are configured to free running synchronous mode.	This issue has been corrected in the current release of all OC-12 cards (Part # 800-06758-02, 800-06759-02, 800-06760-02) and all subsequent versions. If you need additional technical assistance, please call the Cisco Technical Assistance Center at (877) 323-7368
12852	TCC card	serial number ranges of 31550 and 45500 and FAA04280001 through FAA0430A4BA	N/A	N/A	While performing a software upgrade to specific TCCs or activating software on specific TCCs these processes may fail. Additional failure symptoms could include unexplained resets of the TCC.	Screen each node to determine if these defective TCCs are present and replace them if they are identified to contain the defective component. If you need additional technical assistance, please call the Cisco Technical Assistance Center at (877) 323-7368

Fig 12

Net Audit Version 4								Net Sys Advisor
Command	Key Variable (s)	Section	Sub Section	MIB (if applicable)	Poll Freq	Net Info	Net Advice	Include?
RTRV-OC48::FAC-6-1:236;		Performance Configuration Fault	System Media		hourly	BIT ErrorRatio ForSignal Fail - the default value is 1E-4. It has been determined that your value is something other than the default. BIT Error Ratio For Signal Degrade - the default value is 1E-7. It has been determined that your value is something other than the default.	Verify the current value set and investigate why it has changed from default. In some networks, tuning is advantageous and values other than default are acceptable.	√
RTRV-T3:CERENT:FAC-1-2:123:::;		Performance Configuration Fault	System Media		hourly	Line type – the default value for for all DS and EC interfaces except the DS3XM-6 is D4. The default value for the DS3XM-6 is C Bit. It has been determined that your value is something other than the default. Line Code – the default value for all DS and EC interfaces except the DS3XM-6 is AMI. The default value for the DS3XM-6 interface is B3ZS. It has been determined that your value is something other than the default. Circuit Line Buildout - the default value for DS-1 interfaces is 0-131. The default value for EC-1 and DS-3 interfaces is 0-255. The default value for the EC1-12 interface is 0-255. It has been determined that your value is something other than the default.	Verify the current value set and investigate why it has changed from default. In some networks, tuning is advantageous and values other than default are acceptable	√
RTRV-T1:TID:FAC-2-1:1223:::;		Performance Configuration Fault	System Media		hourly	Line type – the default value for for all DS and EC interfaces except the DS3XM-6 is D4. The default value for the DS3XM-6 is C Bit. It has been determined that your value is something other than the default. Line Code – the default value for all DS and EC interfaces except the DS3XM-6 is AMI. The default value for the DS3XM-6 interface is B3ZS. It has been determined that your value is something other than the default. Circuit Line Buildout - the default value for DS-1 interfaces is 0-131. The default value for EC-1 and DS-3 interfaces is 0-255. The default value for the EC1-12 interface is 0-255. It has been determined that your value is something other than the default.	Verify the current value set and investigate why it has changed from default. In some networks, tuning is advantageous and values other than default are acceptable	√

FIG 13